



United States
Department of
Agriculture

Forest
Service



AND

Wyoming DEQ
Abandoned Mine Land
Division



Department of
Environmental Quality

WITH

United States
Department of
Interior

Office of
Surface Mining



February 2004

Environmental Assessment

AML Project 12D, Group 6 Abandoned Mine Reclamation

**Douglas Ranger District, Medicine Bow-Routt National Forest
& Thunder Basin National Grassland
Weston County, Wyoming**

(AML Site 44 in T47N, R64W, section 19; AML Sites 41, 42, and 43 in T47N, R65W, section 3; and AML Site 14 in T48N, R64W, section 7, Weston County, Wyoming)

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SUMMARY

This Environmental Assessment is a cooperative effort between the Medicine Bow-Routt National Forest & Thunder Basin National Grassland (Forest Service), the Abandoned Mine Land Division (AML) of the Wyoming Department of Environmental Quality, and the USDI Office of Surface Mining (OSM). The Wyoming AML Program, on behalf of the Office of Surface Mining, proposes to reclaim abandoned bentonite mines on National Forest System lands. The reclamation project area is located on the Douglas Ranger District, Medicine Bow-Routt National Forest & Thunder Basin National Grassland, Weston County, Wyoming. This action is needed to reduce health and safety hazards to the public using these lands, alleviate environmental degradation and to restore the carrying capacity of disturbed rangeland for wildlife and livestock.

The proposed action would reduce highwall-fall and muck-trap hazards, and is expected to restore native habitat to areas that are presently denuded of vegetation, and prone to erosion and environmental degradation. This action would benefit both the public using the Forest System lands, and wildlife that use these lands in the vicinity of the restoration areas. No long-term adverse impacts are expected if this proposed action is implemented.

In addition to the proposed action, the Forest Service and OSM have evaluated a No Action alternative. The No Action alternative would deny AML and OSM the opportunity to proceed with reclamation on Forest System lands. This alternative would leave public safety hazards and environmental degradation in place. It would leave these abandoned mine land areas in an unproductive state. A detailed description of the proposed action is presented on page 5 of this environmental document.

Based upon the effects of the alternatives, Forest Service and OSM responsible officials will decide whether the proposed action is in the best interest of the public, would be beneficial to the multiple use of the Thunder Basin National Grassland (TBNG), and is in compliance with applicable Grassland Management Plan grassland-wide, and with management area standards and guidelines.

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1. INTRODUCTION

1.1 Document Structure

The Abandoned Mine Land Division (AML) of the Wyoming Department of Environmental Quality and the Medicine Bow-Routt National Forest & Thunder Basin National Grassland (Forest Service) have prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and state laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental effects that could result from implementing the proposed action and alternative. The document is organized into six parts:

- Introduction: includes information on the history of the proposed action.
- Purpose and Need: provides information on the purpose and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the public was informed of the proposal and how the public responded.
- Issues and Alternatives: provides a more detailed description of the proposed action as well as the no-action alternative. These alternatives were developed based on the reclamation plans of the project proponent (AML), and any significant issues raised by the public and other agencies. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- Affected Environment: provides a description of existing environmental conditions.
- Environmental Consequences: describes the environmental effects of implementing the proposed action. This analysis is organized by resource type. Within each section, the affected environment is described first, followed by the effects of the No-Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- Consultation and Coordination: provides a list of preparers and agencies consulted during the development of the environmental assessment.

Appendices: The appendices provide more detailed information to support the analyses presented in this environmental assessment. Additional documentation, including more detailed reports and analyses of project-area resources, may be found in the project planning records located at the AML offices in Cheyenne, Wyoming and the Douglas Ranger District office in Douglas, Wyoming.

1.2 Background

The AML Program is administered by the State of Wyoming with oversight from and the USDI Office of Surface Mining (OSM). For mine reclamation projects under its auspices, OSM, as Lead Federal Agency authorizes AML to act on its behalf. AML, therefore, identifies abandoned mines eligible for OSM reclamation funds, partners with landowners and land management agencies such as the Forest Service for project scoping and planning, and carries out the reclamation projects. The primary goal of the AML program is closure of abandoned mines and associated features to mitigate threats to human health and safety. Additional goals include mitigation of threats to property and wildlife, and mitigation of

environmental degradation to lands and waters. To be eligible for reclamation under this program, an abandoned mine site must present public health and safety or other threats, as listed above, and must have been abandoned prior to August 3, 1977 on private land or August 28, 1974 on Forest System lands. Funding for the AML Program is derived from a special reclamation tax on coal production.

Northeastern Wyoming has historically been mined for bentonite, and there are many abandoned mine workings that meet the eligibility criteria for reclamation by the AML program. The majority of these abandoned workings were left as-is at the point mining stopped. At most of these locations, no backfilling or reclamation was attempted, highwalls were not reduced, and unmitigated hazards exist. Five separate mine sites on Forest System lands have been identified for reclamation by the AML Program. The sites locally represent a threat to public health and safety, and a danger to livestock and native animals. In addition, surface drainage has caused erosion and on-site and off-site environmental degradation, mainly in the form of local sedimentation in drainages. AML plans reclamation actions that would reduce or remove the hazards, and restore native plant communities to the affected rangeland. The current land use is primarily livestock grazing and public recreation. These land uses are expected to continue after reclamation.

AML Project 12D, Group 6 includes five abandoned bentonite mines in Weston County, Wyoming. This document discusses plans for reclamation of AML Site 44 (T47N, R64W, section 19;) AML Sites 41, 42, and 43 (T47N, R65W, section 3); and AML Site 14 (T48N, R64W, section 7). These five sites are a portion of the more than 20 similar sites that would ultimately be reclaimed under the AML program in this vicinity.

2. PURPOSE AND NEED FOR ACTION

The purpose of this proposed action is to reclaim abandoned mine land. Some of these abandoned mines occur on both National Forest System land and private land. Others occur entirely on National Forest System lands. If approved, this project would reclaim abandoned bentonite mines in Weston County, Wyoming.

This action is needed to mitigate existing surface hazards and environmental degradation related to abandoned bentonite mines. Hazards associated with these sites include highwalls, unstable exposed slopes, bentonitic muck, open pits, degraded water quality, on-site and off-site erosion and degradation, and hazardous materials. These features are hazardous to humans, livestock, and wildlife. This action is in compliance with the goals and objectives outlined in the Thunder Basin National Grassland Land and Resources Management Plan (USFS 2002). The proposed action can accomplish habitat restoration, which would move the project area toward desired conditions described in that plan. Approximately 129 acres of National Forest System land (<0.03% of the TBNG total), and approximately 44 acres of private land would be affected by this action.

The principal goal of this AML project is to eliminate hazards to public health and safety, and to reduce environmental degradation in a cost effective way, while being sensitive to landowner concerns, environmental conditions, and general public concerns.

2.1 Decision to be Made

Given the purpose and need for the project, and the results of the environmental effects analysis, the deciding officials will review the proposed action and alternative considered in detail, and will decide whether or not, and if so, how, the proposed abandoned mine land reclamation may proceed. The OSM responsible official will decide whether or not to issue a notice to proceed, while the Forest Service responsible official will decide whether to concur and authorize AML to complete reclamation on Forest System lands. Where the action includes portions of private lands, the OSM official will determine whether the reclamation action may occur on the private land portions.

2.2 Proposed Action

The action proposed by AML is to reclaim the identified abandoned mine lands. The Forest Service would provide concurrence for this project as it is consistent with, and in compliance with, the TBNGLRMP 2001 as amended. The action proposed by OSM, to meet the purpose and need, is to issue AML notice to proceed with reclamation construction on the abandoned mine lands.

2.3 Public Involvement

The proposal was listed in the Medicine Bow-Routt Quarterly Schedule of Proposed Actions on April 2003. The proposal was provided to the public and other agencies for comment during scoping in a March 28, 2003 transmittal. The initial announcement of AML's intent to reclaim these lands was published in the News Letter Journal and Sundance Times on October 5 and 12, 2000. No comments were received on that public notice publication. The Forest Service published a legal notice in the Laramie Boomerang on March 27, 2003 that invited the public to comment on the proposal. The Forest Service received four comment letters in 2003. Individuals and organizations include:

- Wendell Funk, Illinois Citizen
- Wyoming Game and Fish Department
- Wyoming State Historic Preservation Office
- Wyoming Office of State Lands and Investments

Comments, and the responses to them are available at the AML offices in Cheyenne, Wyoming, and the Douglas Ranger District Offices in Douglas, Wyoming.

3. ISSUES AND ALTERNATIVES

3.1 Issues Identified ---

Comments received from the public and State agencies were reviewed to determine if there were significant issues to be addressed in this document. The Forest Service and AML/OSM interdisciplinary team determined that no significant issues related to this proposed project were raised during the public scoping comment period.

3.2 Other Public Concerns ---

The following is a compilation of comments received during the public scoping process. The comments were edited for brevity, and responses address the substantive portions of comments.

- Comment: Had the mines and associated features never been allowed, the national public's property would not now need reclamation. Response: Historical actions cannot be reversed, but some may be repaired by reclamation. Some of these mine disturbances may actually pre-date the establishment of the TBNG (ca. 1960). Resolution of this subject is beyond the scope of this document.
- Comment: Why install culverts? Why not eliminate the roads? Response: No culverts would be placed on the Forest System lands by this project.
- Comment: Rather than fencing, eliminate livestock grazing, thus best serving the national public and recreationist. Response: AML uses fencing to protect reclaimed areas from damage by grazing livestock until vegetation can reestablish. These fences will allow through-passage by wild ungulates. Fencing would remain a minimum of three years, and would be removed thereafter, as required by the TBNG Plan, or effective revisions at that time. Determination of the ultimate land use (i.e., permitting livestock grazing) is not in the scope of this project.
- Comment: Why should the national public pay for reclamation on private land? Response: AML reclamation funding is provided by a reclamation tax on coal production as required by federal law. This law specifies what is eligible for such funding; abandoned mines that are a danger to the public and wildlife, regardless of surface ownership, are eligible for reclamation funding provided they meet the specified criteria.
- Comment: Why consider/allow grazing, hunting, leasing or mining? Especially when recreation occurs throughout the year? Response: Redefining allowable multiple use of Forest System lands is not within the scope of this project. It is not the intent of the AML program to impact allowable commercial multiple use or public recreation,

including hunting on public lands. It is the intent of AML to restore disturbed abandoned mine land to a safe and productive state.

- Comment: If project funding cannot be used for recreation why should it in any way be used for aiding grazing? Response: The goal of reclamation is to reestablish native vegetation and restore natural drainages as well as possible. Reclamation of the proposed areas may provide better forage for wildlife and livestock and would alleviate old mining impacts, which would ultimately provide better recreational and scenic opportunity. Determination of the ultimate land use (i.e., livestock grazing versus native ungulate grazing) is not in the scope of this project.
- Comment: Though impacted/impacting streams are mostly ephemeral to intermittent, riparian areas deserve full consideration. Response: Jurisdictional wetlands would be protected or mitigated as appropriate. The work areas lack riparian communities because the limited, seasonal water availability cannot support these communities.

3.3 Comparison of Alternatives, Including the Proposed Action

This chapter describes and compares the two alternatives considered for the AML Project 12D, Group 6, abandoned mine reclamation. It includes a detailed description and map of the proposed action. This section also presents the proposed action and the no action alternative in a comparative format. It sharply defines the differences between these alternatives and provides a clear basis for making a choice between decision options. Some of the information displayed is based upon environmental, social, and economic effects of implementing an alternative and its likely beneficial effects.

Alternatives

Alternative 1

The Proposed Action

The action proposed by the AML is to reclaim the abandoned mine land areas described in detail below. These lands are presently in an unproductive and degraded state. The Forest Service would provide concurrence for this project as consistent with, and in compliance with, the Thunder Basin National Grassland Land and Resources Management Plan, as amended (USFS 2002).

This project would use standard reclamation methods at each site, with the application of special soil amendments to counter sodic and/or acid soil conditions as determined to be necessary at each location. Prior to the start of reclamation construction, available topsoil would be stockpiled for use as final cover material. If topsoil were unavailable at a particular site because of past mining methods, suitable coversoil would be identified and stockpiled for use as the final cover material.

The general terrain at each site would be recontoured to slopes of 4:1 or less, and would maintain existing drainage meander patterns. Standard construction erosion control methods would be used during and after construction to reduce soil movement and soil loss, and to stabilize drainage areas. Silt barriers would be installed as appropriate to protect local water resources from sedimentation during runoff events. The reclamation contractor would be required to provide for dust control measures that are compliant with applicable state and local regulations.

Native grassland species would be used to at a seeding rate of at least 19.5 pounds of pure live seed (PLS) per acre. After reclamation and reseeding is complete, reclaimed areas would be fenced for a minimum of three years depending on the success of vegetation reestablishment. These areas would be unavailable for livestock grazing until fencing is removed. It should be noted that the present condition of these sites does not provide any significant forage for wildlife or livestock. Fencing will be of a design that is not expected to impede wildlife movement in these areas.

Jurisdictional wetlands would be minimally affected by some recontouring. Wetland mitigation would comply with the applicable COE permit requirements. Where wetlands would be recontoured for better long-term stability, wetland soils would be reserved and reused for reestablishment of wetlands.

The project would avoid disturbing existing ponds in pits during peak frog breeding season of April through May. Wildlife impacts would be further reduced by avoiding disturbance in areas near grouse leks during March 1 through June 15.

The project boundary on Site 42 was adjusted to avoid disturbance of an NRHP-eligible prehistoric site. If any cultural materials are discovered during construction, work in the area will halt immediately and appropriate officials will be contacted. Work in the area will not resume until the materials had been evaluated and adequate measures for their protection or collection had been taken.

Site Descriptions

Site 14 – This site is located in section 7, T48N, R64W. The total disturbed acreage of approximately 75 acres is on Forest System lands. Hazards at this site include unstable highwalls. Reclamation would result in recontouring, and reestablishment of more natural meandering drainage patterns. One seasonal pool of approximately 0.42 acres and one open-water area of about 0.26 acres, as well as several marshy wetlands and wet meadow areas, would remain at the end of the project. These jurisdictional wetlands would be minimally impacted by recontouring.

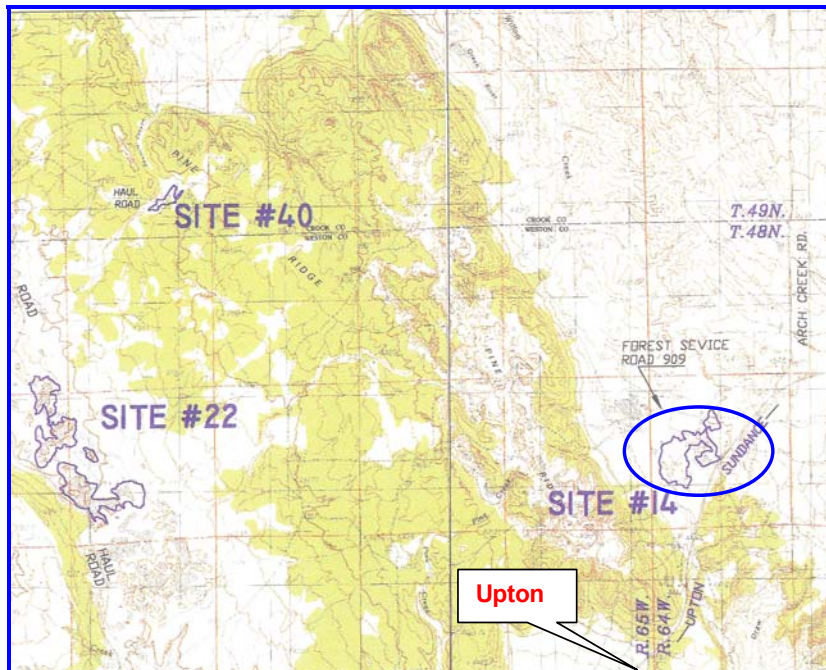
Site 41 – The Forest System portion of the site is located in section 3, T47N, R65W. The total disturbed acreage is approximately 32 acres; approximately 17 acres of this site are private, and approximately 15 acres are on Forest System lands. Hazards at this site include unstable highwalls and hazardous muck pits. Reclamation would include recontouring the site to reduce unstable highwalls and overburden piles, and removal of old mine roads, as

well as reduction of other undesirable or hazardous features (e.g., muck pits). A “muck pit” is an old bentonite mine pit, which has collected a slurry-like saturated clay deposit that retains enough moisture year round to create a quicksand-like trapping hazard. These features have been reported to have trapped and killed livestock, and some humans have also nearly become victims. Unwary wildlife is also considered at risk from these features. Most of the pools and drainages on this site would be recontoured to non-erosive grades and the inlet(s) to the pools, as well as channels between them, would be stabilized against further erosion.

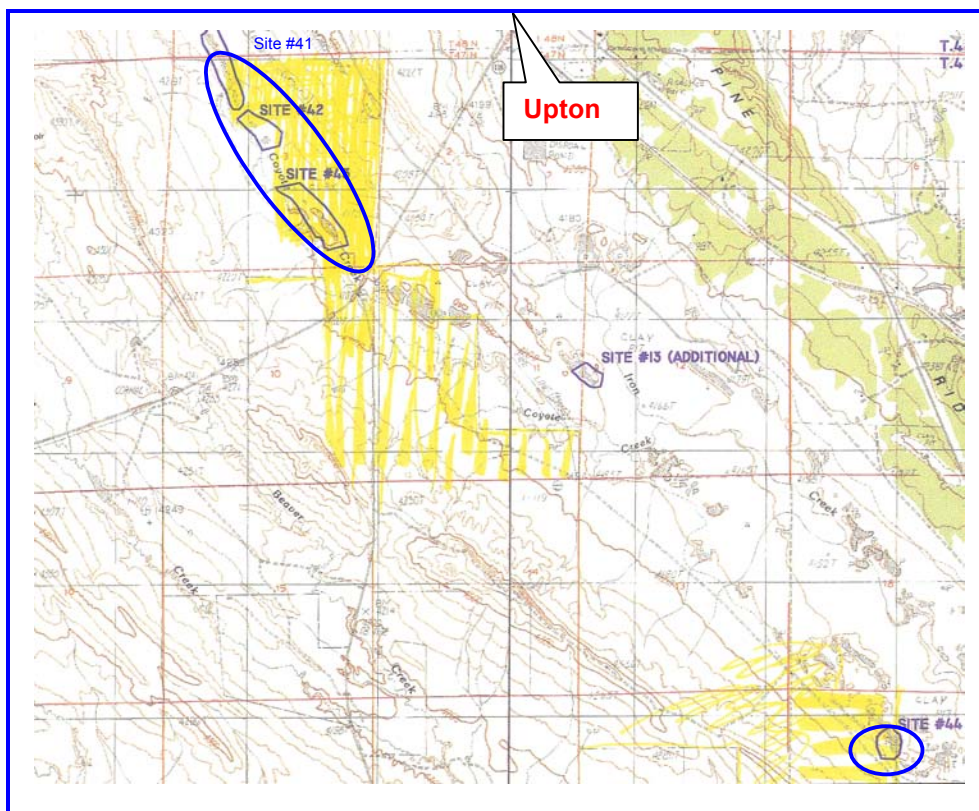
Site 42 – This site is located in section 3, T47N, R65W. The site is primarily on private land, but a small portion (approximately 3 acres) is on Forest System land. The remaining 11 acres of this site are on private land. The total disturbed acreage is approximately 14 acres. The site has experienced severe gullying, mass wasting, and sedimentation, and has a highwall along one pool. Jurisdictional wetlands, and pools, are on private lands. The pools would be recontoured to non-erosive grades and the pools, as well as channels would be stabilized against further erosion.

Site 43 – This site is located in section 3, T47N, R65W. The site is largely on Forest System land (approximately 28 acres), with a smaller portion (approximately 14 acres) on private land. The total disturbed acreage is approximately 42 acres. The site has experienced severe gullying, mass wasting, and sedimentation, and has a highwall along one pool. Jurisdictional as well as non-jurisdictional wetlands are present on Forest System land. The pools on this site would be recontoured to non-erosive grades and the inlet(s) to the pools, as well as channels would be stabilized against further erosion.

Site 44 – This site is located in section 19, T47N, R64W. The site is largely on Forest System land, with a small portion on private land. The total acreage that would be disturbed in this remedial action is approximately 10 acres; 8 acres on Forest System, and 2 acres on private lands. The previously reclaimed site has experienced severe gullying, at an inlet to the pond. A culvert on the privately-owned two-track road at the Iron Creek tributary, an ephemeral drainage, would require repair to allow access of heavy equipment. Reclamation on Forest System land would entail repairing the washout at the drop-structure where extreme channel scouring has occurred. This would require stripping topsoil from the repair area, and constructing a drop-structure at a grade of 10% or less. This would include reconstructing this structure in a non-erosive configuration. It may be necessary to reconfigure tributary channels to this structure upstream of the present erosion problem.



Location Map 1. Site # 14 (circled) is on TBNG land.



Location Map 2. Half of Site #41, and most of Sites #42, #43, and #44 are on TBNG property (sites circled are part of this proposed action).

Alternative 2

No-Action

Under Alternative 2, No-Action Alternative, the Forest Service would not provide concurrence on this action and/or OSM would disapprove a Federal construction grant to AML and would not allow implementation of the abandoned mine land reclamation proposal described under Alternative 1. Under the No-Action alternative, AML would not reclaim the disturbed Forest System lands.

Comparison of the Alternatives Considered in Detail.

Comparison Points	Alternative 1 – Proposed Action	Alternative 2 – No Action
Restoration of vegetation	Approximately 173 acres of rangeland would be seeded with native species	No reclamation would take place
Human health and safety hazard reduction	Hazardous highwalls, muck hazards and other dangers would be eliminated	No hazards would be removed
Wildlife and livestock trapping hazard reduction	Hazardous highwalls, muck hazards and other dangers would be eliminated	No hazards would be removed
Environmental degradation from erosion and siltation	Environmental degradation due to unreclaimed abandoned mines would be reduced or eliminated	There would be no reduction in environmental degradation

4. THE AFFECTED ENVIRONMENT

4.1 General Setting and Site History

The project area is located in northeast Wyoming in Weston County. The analysis area is dominated by open rangeland. The vegetation cover is a combination of native sagebrush and/or greasewood grassland, and includes scattered stands of ponderosa pine woodlands. In addition to historic bentonite mining, the area is used primarily for livestock grazing, dryland agriculture, and in recent years has been experiencing an increase in oil and gas exploration and development.

The proposed work sites are located in areas of open rangeland, and are typically heavily disturbed with sparse vegetation growing on substrate that is derived from mine spoil material. Soils are comprised primarily of clay with a large bentonite component. Some wetland vegetation has established in areas where mining left depressions. Water quality in these non-discharging depressions is frequently poor.

4.2 Critical Environmental Elements

Geological Setting, Soils, and Topography

The project area is on the very eastern edge of the Powder River Basin, and on the western edge of the Black Hills. The Black Hills are a domal uplift with ancient Precambrian rocks in the center. Younger Paleozoic and Mesozoic sedimentary strata dip away from the uplift on all flanks.

The Bear Lodge Mountains, immediately north of Sundance and northeast of the project site, are composed of igneous rocks of Eocene age that intruded and domed the older Paleozoic and Mesozoic strata. Between Sundance and Moorcroft, along Interstate 90, the western flank of the Black Hills dips through Jurassic and Cretaceous sedimentary strata. Formations in the vicinity include the green-gray sandstone of the Jurassic Sundance formation, about 5 miles west of Sundance; rusty sandstones and variegated claystones of the lower Cretaceous Inyan Kara group on either side of Inyan Kara Creek; the black, soft Cretaceous shales bellowing to several formations due south of Keyhole Reservoir; and the light-colored Fox Hills sandstone about 2 miles east of Moorcroft. All of these sandstones and shales were deposited in or along a shallow, marine seaway that covered the western interior of the US throughout Cretaceous time. Cretaceous shales underlie the project area. These types of shale are typically very soft and easily eroded.

Soils are generally sandy-clay to clay, with a large bentonite component. Soils are typically sodic and acidic, and where they have been disturbed, the soils support sparse vegetation only.

Topographically, the terrain is gently rolling to nearly flat shrub-grassland, with some forested outcrops that provide greater relief along ridges that trend generally from the southeast toward the northwest. Elevations range between 4,100 and 4,300 feet above sea level.

Cultural, Paleontological, or Historic Resource Values

LTA, Inc., cultural resource consultants based in Laramie, Wyoming, conducted a Class I Literature Review and Class III inventories for the project sites (LTA 2000, 2002). The inventory revealed that the project boundary on Site 42 appeared to encroach on an NRHP-eligible site, 48WE421, which is a prehistoric site with an extensive scatter of materials. A noncontributing element of 48WE609, previously evaluated as NHRP-eligible does occur on the east side of Coyote Creek where the feature has been extensively disturbed by past mining and erosion. No other cultural resource concerns were found.

A paleontological survey performed by Forest Service personnel did not document significant paleontological resources in these highly disturbed areas (USFS 2003).

Hydrology and Water Quality

The project areas are characterized by ephemeral and intermittent streams that have been dammed for stock water, or where bentonite has been mined, may have depressions that retain surface water. In some locations, where old pits act as non-discharging ponds, water quality is poor. In project sites that are void of vegetation, water is degraded by sediment. In extreme cases “muck pits” have formed, resulting in quicksand-like death-traps where cattlemen have reported livestock deaths. Muck pit water typically has very high concentrations of suspended solids. Site 14 is in the Arch Creek watershed, Sites 41-43 are along the Coyote Creek drainage, and Site 44 is in the Iron Creek drainage downstream of its confluence with Coyote Creek.

Vegetation

The project areas are disturbed areas with sparse vegetation growing on the former mine areas. The undisturbed adjacent habitat is predominantly sagebrush and/or greasewood grassland, with inclusions of stands of ponderosa pine woodlands. The dominant species is big sagebrush (*Artemisia tridentata*) with pockets of black greasewood (*Sarcobatus vermiculatus*). A list of plant species observed in the vicinity of all Project 12 D sites is shown in Appendix A. No threatened or endangered plant species were found during surveys by Western EcoSystems Technology, Inc. (WEST; PHC 2000a, PHC 2001a).

Jurisdictional wetlands have been delineated by WEST, following methodology contained in the 1987 Army Corps of Engineers Wetlands Delineation Manual (PHC 2000b, 2001a). Delineations were submitted to the Army Corps of Engineers (COE) for determination of jurisdictional status. Jurisdictional wetlands are present on Sites 14, 41, and 43. Non-jurisdictional wetlands are also present on most sites. No threatened, endangered, or sensitive plant species were found on the sites.

Fish and Wildlife Resources

Threatened and Endangered Species

Federally listed species potentially occurring in and Weston County, and the probability for their occurrence on the project sites, are listed below. No threatened or endangered (T&E) species were observed on or near the project areas (PHC 2000c, 2001b; AML 2003a&b).

Federally Listed Species with Potential to Occur on Project Sites

Common Name	Scientific name	Status ¹	Key Habitat Characteristics	Potential on site
Mammals				
Black-footed ferret	<i>Mustela nigripes</i>	E	Found in large, active prairie dog colonies.	Unlikely
Birds				
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	Nests and roosts in areas with cliffs and large trees usually near large bodies of water.	Limited to flyovers

¹ Federal Status Definitions:

E = Endangered.
T = Threatened.

Threatened and Endangered Species Considered

Bald Eagle – Use of the vicinity by bald eagles (*Haliaeetus leucocephalus*) is restricted primarily to the winter months. There are currently no known major bald eagle winter concentration areas near any of the project sites.

Black-Footed Ferret – Black-footed ferrets (*Mustela nigripes*) inhabit prairie dog (*Cynomys* spp.) colonies. Since there are no prairie dogs on any of the sites, it is unlikely this species is in the area.

Candidate and Former Candidate Species Considered

Black-Tailed Prairie Dog – In February 2000, the US Fish and Wildlife Service (USFWS) issued a 12-month administrative finding for a petition to list the black-tailed prairie dog (*Cynomys ludovicianus*) (USFWS 2000). The USFWS stated, that sufficient information is currently available to support a finding that listing the black-tailed prairie dog as threatened is warranted, but that a proposed rule at that time was precluded by work on other, higher priority species. The species was retained on the candidate list, and therefore remains a species of concern for this EA. During site surveys in 2000 and 2001 and other site visits in 2003 (PHC 2000c, 2001b, AML 2003b), no black-tailed prairie dogs were observed on any of the sites and their presence is unlikely.

Mountain plover – In September 2003 the USFWS withdrew its proposal to list the species because new information indicated that the threats to the species were not as significant as earlier believed (USFWS 2003). New information made available indicated that occupied black-tailed prairie dog habitat, which provides nesting habitat for plovers, is more abundant than was previously believed. Because of its recent consideration for listing, this species remains a species of concern.

No other T&E or candidate species are listed by Region 6 of the USFWS for Weston County, Wyoming (<http://www.r6.fws.gov/endspp>). A Biological Assessment/Biological Evaluation (BA/BE; AML 2004) prepared for this project discusses T&E, proposed, candidate, and management indicator species in greater detail. The BA/BE is contained in the project file and is available for review by request.

General Wildlife and Fisheries

Wildlife observed in the vicinity of the work sites during spring and summer surveys included the normal assemblage of common shrub-grassland species and migratory waterfowl. A list of wildlife species observed in the vicinity of all Project 12 D sites is shown in Appendix B.

Herpetiles – During AML surveys, northern leopard frogs were recorded in most locations where flooded pits proposed for AML reclamation held water (PHC 2000, PHC 2001). Frog breeding season surveys were conducted on the proposed reclamation sites during 2003 under optimum weather conditions (AML 2003). Frog breeding vocalization surveys recorded observations of boreal chorus frogs at most sites, but not in all pools. Although northern leopard frogs were not recorded during the 2003 vocalization survey, appropriate habitat exists at most sites, except Site 41, which had visibly poor water quality in the flooded pit.

Birds – Passerine birds observed within the work vicinity included vesper sparrow, horned lark, red-winged blackbird, American crow, northern flicker, western meadowlark, Brewer's sparrow*, common nighthawk, and chipping sparrow. Waterfowl included Canada goose, mallard, pintail, western grebe, blue-winged teal, cinnamon teal, American wigeon, northern shoveler, gadwall, bufflehead, canvasback*, lesser scaup, ring-necked duck, piedbilled grebe, green-winged teal, hooded merganser, and redhead. Shore birds included California gull, American avocet, killdeer, great blue heron, Wilson's phalarope, and great egret. Raptors included American kestrel, red-tailed hawk, and northern harrier. (Note: species with asterisk are species of "high Federal interest"; USFWS 2001.)

Mammals – Big game animals observed included pronghorn and mule deer. Other mammals observed were the American badger and an unidentified vole. Foxes, coyotes, skunks, raccoons, various mice, and other common mammals are expected to be present.

Fish – The stream systems associated with these sites are ephemeral, and seasonal ponds and flooded depressions do not support fisheries.

Recreational Resources

Recreation in the area includes primarily big game hunting and other forms of wildlife utilization. The areas where the reclamation actions are planned are not noted as scenic areas, nor are they a major destination for non-consumptive wildlife users.

Air Quality

Air quality in the vicinity is generally not affected by local industry, and is comparable to other rural rangeland/agricultural areas in Wyoming.

Noise

The project sites are in sparsely populated rural agricultural areas with no residential housing nearby.

Socioeconomic

The project sites are rural rangeland areas that are not inhabited by human populations. Site 14 is in the general vicinity of a rural subdivision, but the reclamation area is separated from the residences by a considerable distance.

5. ENVIRONMENTAL CONSEQUENCES

5.1 Environmental Effects

Geological Setting, Soils, and Topography

Alternative 1 – Proposed Action

Direct and Indirect Effects – The expected direct and indirect effects of this action are lessened soil erosion and greater vegetation cover.

Cumulative Effect – The expected cumulative direct and indirect effects of this action are expected to be beneficial as a result of lessened soil erosion and greater vegetation cover.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cultural, Paleontological, or Historic Resource Values

Alternative 1 – Proposed Action

Direct and Indirect Effects – One cultural site was identified as potentially affected by this action. Because the significant part of site 48WE609 is on the opposite side of the creek where the reclamation work would not occur, it was found that the reclamation action would not adversely affect the resource. The State Historic Preservation Office has concurred with findings of cultural surveys, and concurred with avoidance of significant sites as appropriate mitigation.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Hydrology and Water Quality

Alternative 1 – Proposed Action

Direct and Indirect Effects – Once reclamation actions are complete, and natural vegetation cover has been reestablished, water quality in wetlands remaining in the work areas is expected to improve. Silt loads in runoff are expected to be reduced, and erosion should also be reduced.

Cumulative Effect – The expected cumulative beneficial effect of this action is improvement of water quality in surface water runoff from the currently disturbed areas.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Vegetation

Alternative 1 – Proposed Action

Direct and Indirect Effects – The direct and indirect effects of this action are expected to be beneficial as revegetation reestablishes native ground cover for wildlife and livestock.

Cumulative Effect – The expected cumulative direct and indirect effects of this action are expected to be beneficial as a result of revegetation reestablishing ground cover and forage for wildlife and livestock.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Fish and Wildlife Resources

Alternative 1 – Proposed Action

Direct and Indirect Effects – The direct and indirect effects of this action are expected to be beneficial as habitat for wildlife is reestablished. Impacts to wildlife species in general would be minor, short-term, and temporary. This would be offset by long-term larger-scale habitat replacement. Any use of the area by bald eagles would be temporary and no impacts to the species are anticipated. No other impacts are expected.

Cumulative Effect – The expected cumulative direct and indirect effects of this action are expected to be beneficial as a result of revegetation reestablishing ground cover and forage for wildlife.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented. Lack of wildlife habitat improvement will continue as long as these areas remain unreclaimed.

Recreational Resources

Alternative 1 – Proposed Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Air Quality

Alternative 1 – Proposed Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Noise

Alternative 1 – Proposed Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Socioeconomic**Alternative 1 – Proposed Action**

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Alternative 2 – No Action

Direct and Indirect Effects – No significant beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

Cumulative Effect – No significant cumulative beneficial effects or adverse impacts are expected to occur if this alternative is implemented.

5.2 Unavoidable Adverse Impacts

Short-Term Uses Versus Long-Term Productivity**Alternative 1 – Proposed Action**

Noise, dust, and general disturbance would be limited to the construction period. In the long-term, as a result of the proposed reclamation, the elimination of hazardous conditions would improve public health and safety, as well as the condition of the environment.

Alternative 2 – No Action

No public safety hazards would be removed, and no habitat or rangeland improvement would be accomplished, and the aesthetics of these sites would not be improved. Public recreational opportunities would continue to be impaired by poor land condition, and erosion would continue without improvement.

Irreversible and Irretrievable Commitments of Resources

The proposed action would not have any irreversible or irretrievable commitments of resources.

6. CONSULTATION AND COORDINATION

The Wyoming Department of Environmental Quality, Abandoned Mine Land Division (AML) prepared this Environmental Assessment. Agency personnel and other professionals involved with preparation of any part of this analysis are listed below as The AML and Forest Service consulted the following individuals, Federal, state and local agencies, during the development of this environmental assessment:

Persons, Organizations, and Agencies Contacted

Name	Agency/Title	Address
<u>Wyoming Department of Environmental Quality</u>		
Evan Green	AML Administrator	Cheyenne, WY
Marcia Murdock	AML Project Officer – NEPA Compliance Coordinator	Cheyenne, WY
George Boulter	AML Project Officer	Cheyenne, WY
Chris Walla	PHC Engineer, AML Consultant	Cheyenne, WY
<u>US Forest Service Personnel</u>		
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William Steenson	USFS, Environmental Coordinator	Douglas, WY
Cristi Lockman	USFS, Wildlife Biologist	Douglas, WY
Tim Byer	USFS, District Wildlife Biologist	Douglas, WY
Ian Ritchie	USFS, Archeologist	Douglas, WY

Persons, Organizations, and Agencies Contacted (continued)

Name	Agency/Title	Address
<u>Assessment and Analysis</u>		
Tom Collins,	Wyoming Game & Fish Department, Environmental Coordinator	Cheyenne, WY
Matt Bilodeau,	US Army Corps of Engineers, Supervisor	Cheyenne, WY
Greg Johnson	Western Ecosystems Technology, Inc., Biologist	Cheyenne, WY
Tom Larson	LTA, Inc.	Laramie, WY
Judy Wolf	State Historic Preservation Office, Review and Compliance Program Manager	Cheyenne, WY

FEDERAL, STATE, AND LOCAL AGENCIES CONTACTED OR CONSULTED

- US Fish and Wildlife Service
- US Army Corps of Engineers
- US Forest Service
- Wyoming State Historic Preservation Office
- Wyoming Natural Diversity Database
- Wyoming Game and Fish Department
- Wyoming Office of State Lands and Investments

7. REFERENCES

AML 2003a. *Frog Survey Results on US Forest Service Lands for Abandoned Mine Land Reclamation Sites under Project 12D*. Department of Environmental Quality, Abandoned Mine Land Division. Cheyenne, WY. May 2003.

AML 2004. *Biological Assessment and Biological Evaluation Report for Abandoned Mine Land Reclamation –AML Project 12D, Group 6*. Department of Environmental Quality, Abandoned Mine Land Division. Cheyenne, WY. October 2003.

LTA, Inc. 2002. *Results of Archaeological Site Inspections Related to AML Project 12D, Weston County, Wyoming*. LTA, Inc., Laramie, WY. December.

LTA, Inc. 2000. *Results of a Class I and Partial Class III Cultural Resource Inventory for AML Project 12D*. LTA, Inc., Laramie, WY.

PHC. 2001a. *AML Project 12D Wetland Delineation Report, Amendment No. 1*. Prepared for Wyoming Department of Environmental Quality, Abandoned Mine Lands Division by PHC Reclamation, Inc., Cheyenne, WY. July 18, 2001.

PHC. 2001b. *AML Project 12D, T&E Species Survey Report*. Prepared for Wyoming Department of Environmental Quality, Abandoned Mine Lands Division by PHC Reclamation, Inc., Cheyenne, WY. October 15, 2001.

PHC. 2000a. *AML Project 12D Vegetation Report*. Prepared for Wyoming Department of Environmental Quality, Abandoned Mine Lands Division by PHC Reclamation, Inc., Cheyenne, WY. August 2000.

PHC. 2000b. *AML Project 12D Wetland Delineation Report*. Prepared for Wyoming Department of Environmental Quality, Abandoned Mine Lands Division by PHC Reclamation, Inc., Cheyenne, WY. June 2000.

PHC. 2000c. *AML Project 12D Wildlife Report*. Prepared for Wyoming Department of Environmental Quality, Abandoned Mine Lands Division by PHC Reclamation, Inc., Cheyenne, WY. August 2000.

USFS. 2003. *Certification Of Acceptance: Paleontology Survey and Report, Wyoming Department of Environmental Quality, Abandoned Mine Lands AML 12 D, Abandoned Mine Lands Reclamation*. USDA Forest Service Medicine Bow/Routt National Forests And Thunder Basin National Grassland Douglas Ranger District. March 2003.

USFS. 2002. *Revised Land and Resource Management Plan for the Thunder Basin National Grassland*. USDA Forest Service, Medicine Bow-Routt National Forests and Thunder Basin National Grassland. Laramie, Wyoming. July 31, 2002.

USFWS. 2003. *Endangered and Threatened Wildlife and Plants; Withdrawal of the Proposed Rule to List the Mountain Plover as Threatened*. US Fish and Wildlife Service. September 9, 2003.

USFWS. 2001. *Draft Migratory Bird Species of Management Concern in Wyoming*. US Fish and Wildlife Service. Listed issued on February 9, 2001.

USFWS. 2000. *12-Month Administrative Finding, Black-tailed Prairie Dog*. US Forest Service Website: <http://www.r6.fws.gov/btprairiedog/12month2000/toc.htm>.

APPENDIX A

LIST OF PLANT SPECIES IN PROJECT AREA

Appendix A:
Common and Scientific Names of Plants Observed in the Project 12 D Area

Common Name	Scientific Name
Trees	
Ponderosa Pine	<i>Pinus ponderosa</i>
Rocky Mountain Juniper	<i>Juniperus scopulorum</i>
Narrowleaf Cottonwood	<i>Populus angustifolia</i>
Plains Cottonwood	<i>Populus deltoides</i>
Chinese Tamarisk	<i>Tamarix chinensis</i>
Shrubs and Sub-shrubs	
Black Greasewood	<i>Sarcobatus vermiculatus</i>
Sandbar Willow	<i>Salix exigua</i>
Douglas Rabbitbrush	<i>Chrysothamnus viscidiflorus</i>
Wood's Rose	<i>Rosa woodsii</i>
Big Sagebrush	<i>Artemisia tridentata</i>
Snakeweed	<i>Gutierrezia sarothrae</i>
Four-wing Saltbush	<i>Atriplex canescens</i>
Rubber Rabbitbrush	<i>Chrysothamnus nauseosus</i>
Fringed Sagebrush	<i>Artemisia frigida</i>
Absinthe Wormwood	<i>Artemisia absinthium</i>
Silver Sagebrush	<i>Artemisia cana</i>
Winterfat	<i>Krascheninnikovia lanata</i>
White Sage	<i>Artemisia ludoviciana</i>
Cacti and Succulents	
Pricklypear	<i>Opuntia polyacantha</i>
Yucca	<i>Yucca glauca</i>
Forbs	
Curlycup Gumweed	<i>Grindelia squarrosa</i>
Seepweed	<i>Suaeda calceoliformis</i>
Kochia	<i>Kochia scoparia</i>
Russian Thistle	<i>Salsola kali</i>
Western Yarrow	<i>Achillea millefolium</i>
Buckwheat	<i>Eriogonum pauciflorum</i>
Yellow Pea	<i>Thermopsis rhombifolia</i>
Yellow-blossom Sweetclover	<i>Melilotus officinalis</i>
Wild Licorice	<i>Glycyrrhiza lepidota</i>
Common Cocklebur	<i>Xanthium strumarium</i>
Hood's Phlox	<i>Phlox hoodii</i>
Aster	<i>Aster sp.</i>
Pussytoes	<i>Antennaria sp.</i>
Groundsel	<i>Senecio sp.</i>
Curly Dock	<i>Rumex crispus</i>

Common and Scientific Names of Plants Observed in the Project 12 D Area

Common Name	Scientific Name
(Forbs Continued)	
Clasping Pepperweed	<i>Lepidium perfoliatum</i>
Hymenoxys	<i>Hymenoxys acaulis</i>
Clover	<i>Trifolium sp.</i>
Lupine	<i>Lupinus sp.</i>
Western Salsify	<i>Tragopogon dubius</i>
Pennycress	<i>Thlaspi arvense</i>
Scarlet Globemallow	<i>Sphaeralcea coccinea</i>
Wallflower	<i>Erysimum inconspicuum</i>
Canada Thistle	<i>Cirsium arvense</i>
Prostrate Knotweed	<i>Polygonum aviculare</i>
Prostrate Pigweed	<i>Amaranthus blitoides</i>
Halogeton	<i>Halogeton glomeratus</i>
Milk Vetch	<i>Astragalus sp.</i>
Leafy Spurge	<i>Euphorbia esula</i>
Phlox	<i>Phlox sp.</i>
Alyssum	<i>Alyssum alyssoides</i>
Prickly Lettuce	<i>Lactuca serriola</i>
Sowthistle	<i>Sonchus asper</i>
Goldenrod	<i>Solidago sp.</i>
Smartweed	<i>Polygonum sp.</i>
Skeletonweed	<i>Lygodesmia juncea</i>
Scurf-pea	<i>Psoraleidum lanceolatum</i>
Toadflax	<i>Linaria vulgaris</i>
Common Sunflower	<i>Helianthus annuus</i>
Grasses	
American Sloughgrass	<i>Beckmania syzigachne</i>
Timothy	<i>Phleum pratense</i>
Smooth brome	<i>Bromus inermis</i>
Idaho Fescue	<i>Festuca idahoensis</i>
Foxtail Barley	<i>Hordeum jubatum</i>
Prairie Cordgrass	<i>Spartina pectinata</i>
Bluebunch Wheatgrass	<i>Elymus spicatum</i>
Western Wheatgrass	<i>Pascopyrum smithii</i>
Green Needlegrass	<i>Stipa viridula</i>
Inland Saltgrass	<i>Distichlis spicata</i>
Nuttall's Alkaligrass	<i>Puccinellia nuttalliana</i>
Little Bluestem	<i>Andropogon scoparius</i>
Prairie Sandreed	<i>Calamovilfa longifolia</i>
Alkali Sacaton	<i>Sporobolus airoides</i>

Common and Scientific Names of Plants Observed in the Project 12 D Area

Common Name	Scientific Name
(Grasses Continued)	
Blue Grama	<i>Bouteloua gracilis</i>
Prairie Junegrass	<i>Koeleria macrantha</i>
Needle-and-thread	<i>Stipa comata</i>
Indian Ricegrass	<i>Oryzopsis hymenoides</i>
Squirreltail	<i>Sitanion hystrix</i>
Brome	<i>Bromus squarrosus</i>
Cheatgrass	<i>Bromus tectorum</i>
Crested Wheatgrass	<i>Agropyron cristatum</i>
Annual False Wheatgrass	<i>Eremopyrum triticeum</i>
Bluegrass	<i>Poa sp.</i>
Canada Wild Rye	<i>Elymus canadensis</i>
Rabbitfoot Polypogon	<i>Polypogon monspeliensis</i>
Red Three-awn	<i>Aristida purpurea</i>
Sloughgrass	<i>Beckmania syzigachne</i>
Tufted Hairgrass	<i>Deschampsia cespitosa</i>
Meadow Fescue	<i>Festuca pratensis</i>
Common Tumblegrass	<i>Schedonnardus paniculatus</i>
Grasslikes	
Creeping Spikerush	<i>Eleocharis palustris</i>
Broadleaf Cattail	<i>Typha latifolia</i>
Narrowleaf Cattail	<i>Typha angustifolia</i>
Baltic Rush	<i>Juncus balticus</i>
Slender Rush	<i>Juncus tenuis</i>
Saltmarsh Bulrush	<i>Scirpus maritimus</i>
Softstem Bulrush	<i>Scirpus validus</i>
Hardstem Bulrush	<i>Scirpus acutus</i>
Threadleaf Sedge	<i>Carex filifolia</i>

APPENDIX B

LIST OF WILDLIFE SPECIES IN PROJECT AREA

Appendix B:
Common and Scientific Names of Wildlife Observed in the Project 12 D Area

Common Name	Scientific Name
Mammals	
Pronghorn Antelope	<i>Antilocapra americana</i>
Mule Deer	<i>Odocoileus hemionus</i>
Coyote	<i>Canis latrans</i>
Red Fox	<i>Vulpes vulpes</i>
Raccoon	<i>Procyon lotor</i>
Muskrat	<i>Ondatra zibethica</i>
Badger	<i>Taxidea taxus</i>
Vole	<i>Microtus sp.</i>
Least Chipmunk	<i>Tamias striatus</i>
Thirteen-lined Ground Squirrel	<i>Spermophilus tridecemlineatus</i>
Birds	
Western Grebe	<i>Aechmophorus occidentalis</i>
Pied-billed Grebe	<i>Podilymbus podiceps</i>
Killdeer	<i>Charadrius vociferus</i>
Spotted Sandpiper	<i>Actitis macularia</i>
California Gull	<i>Larus californicus</i>
Great Egret	<i>Ardea alba</i>
Wilson's Phalarope	<i>Phalaropus tricolor</i>
American Avocet	<i>Recurvirostra americana</i>
Great Blue Heron	<i>Ardea herodias</i>
Canada Goose	<i>Branta canadensis</i>
Mallard	<i>Anas platyrhynchos</i>
American Wigeon	<i>Anas americana</i>
Northern Pintail	<i>Anas acuta</i>
Gadwall	<i>Anas strepera</i>
Blue-winged Teal	<i>Anas discors</i>
Cinnamon Teal	<i>Anas cyanoptera</i>
Green-winged Teal	<i>Anas crecca</i>
Northern Shoveler	<i>Anas clypeata</i>
Bufflehead	<i>Bucephala albeola</i>
Canvasback	<i>Aythya valisineria</i>
Lesser Scaup	<i>Aythya affinis</i>
Ring-Necked Duck	<i>Aythya collaris</i>
Redhead	<i>Aythya americana</i>
Hooded Merganser	<i>Lophodytes cucullatus</i>
Northern Harrier	<i>Circus cyaneus</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>

Common and Scientific Names of Wildlife Observed in the Project 12 D Area

Common Name	Scientific Name
(Birds Continued)	
American Kestrel	<i>Falco sparverius</i>
Wild Turkey	<i>Meleagris gallopavo</i>
Mourning Dove	<i>Zenaida macroura</i>
Common Nighthawk	<i>Chordeiles minor</i>
Northern Flicker	<i>Colaptes auratus</i>
Mountain Bluebird	<i>Sialia currocoides</i>
Black-capped Chickadee	<i>Parus atricapillus</i>
Red-breasted Nuthatch	<i>Sitta canadensis</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Western Meadowlark	<i>Sturnella neglecta</i>
American Crow	<i>Corvus brachyrhynchos</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Horned Lark	<i>Eremophila alpestris</i>
Vesper Sparrow	<i>Pooecetes gramineus</i>
Brewer's Sparrow	<i>Spizella breweri</i>
Chipping Sparrow	<i>Spizella passerina</i>
Lark Bunting	<i>Calamospiza melanocorys</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Lark Sparrow	<i>Chondestes grammacus</i>
Cliff Swallow	<i>Hirundo fulva</i>
Barn Swallow	<i>Hirundo rustica</i>
Violet-green Swallow	<i>Tachycineta thalassina</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Rock Wren	<i>Salpinctes obsoletus</i>
Western Wood Pewee	<i>Contopus sordidulus</i>
Red Crossbill	<i>Loxia curvirostra</i>
Townsend's Solitaire	<i>Myadestes townsendii</i>
Plumbeus Vireo	<i>Vireo plumbeus</i>
Yellow-rumped Warbler	<i>Dendroica coronata</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Reptiles and Amphibians	
Northern Leopard Frog	<i>Rana pipiens</i>
Boreal Chorus Frog	<i>Pseudacris triseriatus</i>
Northern Sagebrush Lizard	<i>Sceloporus graciosus graciosus</i>